

This preliminary amendment is submitted for the purposes of eliminating multiple dependencies of the claims and conforming to U.S. practice. Separate sheets showing the marked-up claims are attached hereto for the convenience of the Examiner. Approval and allowance are requested.

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Version with Markings to Show Changes Made

The claims have been amended as follows:

3. (Amended) A method according to claim 1 [or 2], further comprising:

at least one further [determination] step of determining similar to [the determination steps] said step of determining of claim 1 for determining at least one further distance between the transmitting station and at least one further receiving station having a characteristic parameter describing the radio propagation environment of the at least one further receiving station; and

combining the results of the determinations for receiving the current geographical location of the transmitting station.

4. (Amended) A method according to claim 1 [or 2], further comprising:

at least one further [determination] step of determining similar to [the determination steps] said step of determining of claim 1 for determining at least one further distance between the receiving station and at least one further transmitting station having a characteristic parameter describing the radio propagation environment of the at least one further transmitting station; and

combining the results of the determinations for receiving the current geographical location of the receiving station.

5. (Amended) A method according to [any of the preceding claims] claim 1, wherein said at least one feature [to be

measured] comprises at least travel time of the signal between the transmitting and receiving stations.

6. (Amended) A method according to [any of the preceding claims] claim 1, wherein said at least one feature [to be measured] comprises at least signal travel time differences between the transmitting and receiving stations.

7. (Amended) A method according to [any of the preceding claims] claim 1, wherein said at least one feature [to be measured] comprises [the] at least strength of the received signal.

8. (Amended) A method according to [any of the preceding claims] claim 1, wherein said at least one feature [to be measured] comprises [the] quality of the received signal.

9. (Amended) A method according to [any of the preceding claims] claim 1, comprising steps of using a weighted least square method for calculating [the] a location of the transmitting station, wherein [the] a used weighting matrix is [the] an inverse of an error covariance matrix.

10. (Amended) A method according to [any of the preceding claims] claim 1, further comprising steps of:

defining [the] radio propagation environments for several stations; and

classifying the stations in different radio propagation environment classes;

wherein the characteristic parameter is based on the class of the station.

11. (Amended) A method according to [any of the preceding claims] claim 1, wherein [the] data for the characteristic parameter is stored and processed in a location service node implemented in a telecommunications system.

12. (Amended) A method according to [any of the preceding claims] claim 1, wherein the stations are connected to a mobile telecommunications system, the transmitting station being a mobile station and the receiving station being a base station of the mobile telecommunications system or vice versa.

13. (Amended) A method according to [any of the preceding claims] claim 1, wherein the transmitting station and the receiving station are implemented in a telecommunications system, and wherein the [determination of] step of determining the characteristic parameter comprises the steps of:

determining [the] a current geographical location of at least one of the stations by means which are external to the telecommunications system; and

inputting the results of the determination to the telecommunications system.

14. (Amended) A method according to claim 13, comprising use of a satellite based positioning system for the [determination of] step of determining the current geographical location of at least one of the stations.

15. (Amended) An arrangement for determining a distance between a transmitting station and a receiving station, comprising:

storage means for storing a characteristic parameter describing [the characteristics] a characteristic of the radio propagation environment of the receiving station;

measurement means for [measuring] providing a measurement of a feature of a signal transmitted from the transmitting station to the receiving station[, said feature facilitating determination of the distance between the transmitting station and the receiving station]; and

a controller for receiving [the outcome of] said measurement and for defining the distance between the transmitting station and the receiving station [on the basis of the outcome of the] according to said measurement and the characteristic parameter.

17. (Amended) An arrangement according to claim 16, further comprising:

at least one further receiving station having a substantially fixed location and provided with a characteristic parameter describing [the] a radio propagation environment of said at least one further receiving station; and

means for [measuring] providing a measurement of a feature of a signal transmitted from the transmitting station to the at least one further receiving station, said feature facilitating determination of [the] a distance between the transmitting station and the at least one further receiving station[;],

wherein the arrangement is such that [the outcome of] the measurement of the feature of the signal transmitted to the at least one further receiving station is also used when determining the location of the transmitting station.

18. (Amended) An arrangement according to claim 16, further comprising:

at least one further transmitting station having a substantially fixed location and provided with a characteristic

parameter describing [the] a radio propagation environment of said at least one further transmitting station; and

means for [measuring] providing a measurement of a feature of a signal transmitted from the at least one further transmitting station to the receiving station, said feature facilitating determination of [the] a distance between the receiving station and the at least one further transmitting station;

wherein the arrangement is such that [the outcome of] the measurement of the feature of the signal transmitted from the at least one further transmitting station is also used when determining the location of the receiving station.

19. (Amended) An arrangement according to [any of claims 15 to 18] claim 15, wherein different radio propagation environments of different stations are classified in different radio propagation environment classes and the characteristic parameter is based on the class of the station.

20. (Amended) An arrangement according to [any of claims 15 to 19] claim 15, wherein the feature of the signal is based on one or several of the following: travel time of the signal between the transmitting and receiving stations, signal travel time difference between the transmitting and receiving stations, [the] strength of the received signal, [the] quality of the received signal.

21. (Amended) An arrangement according to [any of claims 15 to 20] claim 15, comprising a mobile telecommunications system, wherein the transmitting station is a mobile station and the receiving station is a base station of the mobile telecommunications system or vice versa.

23. (Amended) A location server for use in a telecommunications system for provision of location data of a mobile station having a radio connection with at least one base station of the telecommunications system, comprising:

means for receiving measurement data from the telecommunications system concerning a feature of the connection between the mobile station and the base station, said feature facilitating determination of the distance between the mobile station and the base station;

storage means for storing a characteristic parameter describing [the] a radio propagation environment of the base station;

control means for defining [the] a distance between the mobile station and the base station [on the basis of] according to the [received] measurement data and the characteristic parameter.

24. (Amended) An arrangement in a telecommunications system for creating and/or updating data concerning [the] a radio propagation environment of a station of the telecommunications system, comprising:

a first station;

a second station for communicating by radio with the first station;

means for defining [the] a current geographical location of the first station be means of a source of location information that is external to the telecommunications system;

determining means for determining a feature of a radio signal received by one of the stations from the other of the stations; and

calculating means for calculating a parameter of the radio propagation environment by means of the [determined]

current geographical location of the first station and the [said determined] feature.

25. (Amended) An arrangement according to claim 24, further comprising means for receiving signals from a satellite based positioning system.

26. (Amended) An arrangement according to claim 24 [or 25], further comprising means for determining if an update of the data concerning the radio propagation environment is required.

27. (Amended) An arrangement according to [any of claims 24 to 26] claim 24, wherein the first station comprises a portable device comprising the determining means for determining the feature of the radio signal.